

CLAIMS

1. Austenitic nickel-chromium-molybdenum alloys with additions of silicon, characterized by alloy components (in mass percentages) :

add B1

Cr	18 - 22 %
Mo	.6 - 10 %
Si	0.6 - 1.7 %
C	0.002 - 0.05 %
Fe	1 - 5 %
Mn	0.05 - 0.5 %
Al	0.1 - 0.5 %
Ti	0.1 - 0.5 %
Mg	0.005 - 0.05 %
Ca	0.001 - 0.01 %
V	max. 0.5 %
P	max. 0.02 %
S	max. 0.01 %
B	0.001 - 0.01 %
Cu	max. 0.5 %
Co	max 1 %
Nb	max. 0.5 %

Hf and/or Y and/or Zr and/or rare earth elements - 0.02 - 0.5%
the remainder being nickel and impurities caused by the melting process.

2. Alloy as in claim 1, characterized by alloy components (in mass percentages):

Cr	18 - 20 %
Mo	8 - 9.0 %
Si	0.7 - 1.1 %
C	0.002 - 0.15 %
Fe	2.5 - 3.5 %
Mn	0.05 - 0.1 %
Al	0.1 - 0.3 %
Ti	0.1 - 0.4 %
Mg	0.005 - 0.15 %

Ca 0.001 - 0.005 %

V max. 0.1 %

P max. 0.002 %

S max. 0.001 %

B 0.001 - 0.001 %

Cu max. 0.5 %

Hf and/or Y and/or Zr and/or rare earth elements - 0.03 - 0.06%
the remainder being nickel and impurities caused by the melting process.

3. Alloy as in claim 1, characterized by a molybdenum content between 6.5 and 9.5 %

4. Alloy as in claim 1, characterized by a silicon content between 0.6 and 1.3 %

as 5. Utilization of the alloy as in ^{Claim 1} ~~one of the claims 1 to 4~~, for the production of pipes, sheet metal, band material, foils, wires as well as of items made of these semi-products.

a 6. Utilization of the alloy according to ^{Claim 1} ~~one of the claims 1 to 4~~ for the production of composite pipes.

a 7. Utilization of the alloy according to the invention as in ^{Claim 1} ~~one of the claims 1 to 4~~ as corrosion protection in form of applied welding or plating.

Table 1: Examples of Alloys

Example	Chemical Composition in %
---------	---------------------------

REPLACEMENT PAGE (RULE 26)

Fig. 1: Loss of mass (metal loss) after 240 hour aging of salt-subjected samples in air at 750°C

SALT: 0.9 MOL NaCl, 0.1 MOL CaCl₂, 0.25 mol NaHCO₃

**Mass
Change
in
g/m²**

Example A	Example B	Example D	Example E
-----------	-----------	-----------	-----------

Replacement page (Rule 26)

Metallographically determined corrosion effect after 240 hours aging of samples subjected to salt, in air at 750°C

Internal corrosion effect

effect in

mm

Example E

Replacement page (rule 26)[illegible]

Fig. 3:

**Internal corrosion, metal removal and overall corrosion effect after 1000 hours of aging
(600°C) in synthetic waste burning gas**

Boiler ash coatings

Internal corrosion

Corrosion

effect

in mm

Example F Example G

2,4856

Replacement page (rule 26)

66220-225560

Fig. 4:

Overall corrosion effect after 1008 hours aging at 750°C in synthetic waste burning gas;

Samples coated with Na₂SO₄ / KCl (750°C)

Internal corrosion

Metal removal

Corrosion

effect

in mm

Example F 2.4856

Example G 9% Mo Example H 16% Mo

Replacement page (Rule 26)

669220-221566

Notch Bar Test Toughness of Ni-20Cr-9Mo-Si Alloys after aging in air at 600° C

Bar Test

Toughness

in

 J/cm^2

2.4856

Example A

Example B

Example D

Example E

Replacement page (Rule 26)